Preliminary and Incomplete

Redistributive Politics with Target-specific Beliefs

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Abstract

There is perennial tension between the generosity of means-tested transfers and the work efforts of recipients. Individual support for these policies is associated with beliefs about whether the poor are lazy or industrious. At the same time, support for general redistribution from the rich to the poor is viewed in terms of general beliefs that luck rather than effort determines income (or mobility). This paper takes a first step toward unifying these literatures by incorporating target-specific beliefs about the rich and the poor into a model that broadly follows key insights from the literature on general beliefs and preferences for redistribution. We develop and test a theory about support for redistribution in the presence of target-specific beliefs about the causes of low and high incomes. Our theory predicts that target-specific beliefs about the poor matter most for preferences about transfers to the poor, and target-specific beliefs about the rich matter most for preferences about taxation of the rich. Survey evidence from the United States and from Germany, the latter using survey questions we wrote for a module of the German Socio-Economic Panel, confirms this. We find that 42% of Americans give different answers when asked, respectively, about the reasons for being rich and the reasons for being poor. Experimental evidence on giving money to real welfare recipients provides additional support for our theory.

JEL Codes: D63; D72; H21; H24

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1. Introduction

There is perennial tension between generosity of means-tested transfers and work efforts of recipients (Piven and Cloward 1971; Akerlof 1978; Nichols and Zeckhauser 1982, 1995; Besley and Coate 1992; Lindbeck and Nyberg 2006; Lindbeck and Persson 2017). When it comes to voter-taxpayer support for these policies, beliefs about whether the poor are lazy or industrious have a well-documented association with generosity, with more support for transfers when individuals say the poor are industrious rather than lazy (Williamson 1974; Gilens 1999). A different question concerns support for general redistribution from the rich to the poor. Here, general beliefs that luck rather than effort determines income (or mobility) are thought to be positively associated – through various causal mechanisms – with support for redistribution (Piketty 1995; Fong 2001; Alesina, Glaeser and Sacerdote 2001; Corneo and Gruner 2002; Alesina and Angeletos 2005; Benabou and Tirole 2006). Literatures on the roles of target-specific beliefs in determining support for helping the poor and general beliefs in determining preferences for general redistribution have evolved separately, and it is not obvious how the two types of beliefs, and their roles in supporting redistribution, relate to each other. This paper takes a first step toward unifying these literatures by incorporating target-specific beliefs about the rich and the poor into a model of income redistribution.

Empirically, we show that beliefs about causes of income for specific income groups have strong effects on preferences for redistributive policies targeted at those same groups. Figure 1 illustrates a pattern that we find. The bars show coefficients in two regression equations predicting support for government transfers to the poor and support for taxation of the rich. The coefficients in each equation are the estimated effects of beliefs that: (i) being poor is caused by bad luck, and (ii) being rich is caused by good luck. In the equation predicting support for taxes on the rich, the target-specific belief is the one about rich people. In the equation predicting support for transfers to the poor, the target-specific belief is the one concerning poor people. Figure 1 shows that the target-specific beliefs have a larger effect than the non-target-specific beliefs both within equations and across equations. Theoretically, we show that accounting for target-specific beliefs in an otherwise standard model can account not only for the observed empirical pattern, but also predicts the possibility of multiple equilibria, including the interesting case where higher income individuals may prefer to dis-incentivize effort so that lower income classes will not invest in effort and thus will not be considered worthy of support, thus excusing the rich from supporting redistribution.

We begin with a simple baseline model with two income groups and balanced budget requirement (as is common in the optimal tax approach) which is consistent with insights from the prior literature, but cannot explain target-specific belief effects on preferences for redistribution. In our baseline, there are

two income levels, and high incomes may result from high effort or good luck and low incomes may result from lack of effort or bad luck. Our model allows for a separate tax (or transfer) policy for each income level. We then depart from the prior literature by allowing beliefs about the causes of each income level to differ and move independently. Together with self-interest, these target-specific beliefs may play a key role in explaining redistributive preferences through fairness concerns, following Alesina and Angeletos (2005). Nonetheless, in our baseline model, if there is a balanced-budget constraint on government spending, then one redistributive policy determines the other through the government budget constraint. Thus, there is just a single redistributive policy, and the preferred level of redistribution increases in the share of entitled rich who are rich through good luck and decreases in the share of lazy poor who remain poor because they did not invest in effort.

To illuminate how target-specific belief effects might be developed and incorporated into prior theory, we extend the baseline model in two ways that allow studying the effects of beliefs about causes of low and high incomes on preferences towards taxing the rich and helping the poor separately. The first approach introduces a middle income class and an intermediate level of effort investment. We keep the balanced budget requirement and assume that high effort investment always results in high income, but that intermediate effort investment has a stochastic outcome, resulting in intermediate income in case of good realization but in low income in case of bad luck. We show that increases in the perceived mass of entitled rich increase preferred taxes on the rich and transfers to the poor, and decrease the preferred tax on the middle class. Increases in the perceived mass of lazy poor reduce preferred transfers to the poor, and reduce preferred taxes on the middle class and on the rich.

The second approach has only two income classes (as in the baseline model), but replaces the balanced budget requirement with a shadow price of public funds, which allows taxes on the rich and transfers to the poor to move independently. We show that under the flexible budget constraint, preferred taxes on the rich depend on the beliefs about the rich, but not beliefs about the poor. Correspondingly, preferred transfers to the poor depends only on beliefs about the poor, not about the rich.

Finally, we extend our model to account for insurance aspects and endogenous effort. We analyze the role of insurance motives by studying redistributive preferences in a two-income-class model if taxes on those with high incomes and transfers to those with low incomes are decided before the realizations of high effort investment are revealed. In that case, beliefs about the future share of lazy poor and entitled rich affect redistributive preferences of those who invested in high effort also by changing the beliefs about the probability of success. A higher expected share or lazy poor implies that those who made the high effort investment are less likely to fail, and this reduces insurance demand for redistribution. A higher share of entitled rich, instead, would imply that the share of the rich who are hard-working is lower

and this implies a lower probability of success of high effort investment, increasing insurance demand for redistribution.

In our extension that accounts for endogenous effort, we show that if effort choices are endogenous, there can be multiple equilibria. If we take the level of taxes on the rich and transfers to the poor as given and adjust taxes on the middle class, then if there are multiple equilibria then those with more redistribution (welfare state equilibria) are associated with lower effort investment. If, instead, those with high-incomes wield the political power they may strategically discourage intermediate effort investment and prefer an equilibrium with large number of lazy poor to an equilibrium with a smaller number of industrious poor. This would imply a strategically high tax on the middle class, coupled with low taxes on the rich and little or no support for the poor. The intuition for this discouragement equilibrium is that the lazy poor are not morally entitled to transfers, so those with high incomes feel that low-redistribution society is just.

Our result on multiple equilibria has interesting parallels but also crucial differences compared with Hassler et al. (2003) on Markov perfect equilibria on voting on distorting redistribution. They conclude that in some equilibria, majority of beneficiaries from redistribution may vote strategically to induce an end to the welfare state in the next period as this would then encourage effort investment and increase the size of the cake (on which they are then satisfied with a lower share by reducing redistribution). In our model, if the taxes on the rich and transfers to the poor are fixed, equilibria with low taxes on the intermediate incomes are associated with higher effort, in line with Hassler et al. (2003). However, the discouragement equilibrium in which those with high incomes prefer a larger number of poor who did not even try to make it to the middle class is novel to the literature and dramatically different from Hassler et al. (2003). We show that having a small middle class may be a price that the rich are willing to pay to keep taxes on themselves and transfers to the poor low. Even more, we show that if the rich have the political power but have also fairness concerns they may prefer an equilibrium in which they feel that the poor do not deserve more than they have to an equilibrium in which those who choose between low and intermediate effort investment would choose the intermediate investment, some of them failing and having then a moral claim to income support as industrious poor.

We test the predictions of the model using unique data on target-specific beliefs from (i) a Gallup Social Audit (Gallup 1998) and (ii) data from a module that we wrote which was included in the 2014 innovation sample of the German Socioeconomic Panel (SOEP). These datasets have certain advantages over any other social survey questions we have been able to find on beliefs about causes of poverty, income, success, getting ahead, or opportunity. First, both the Gallup and SOEP data have questions on why the poor are poor that are worded as identically as possible to questions on why the rich are rich. Second, we are aware of no other datasets that have all four of the questions needed to test for target-

specific beliefs – namely, beliefs about causes of high income, beliefs about causes of low income, preferences for taxing the rich, and preferences for transfers to the poor. We can thus test for an entire pattern of results that rules out a host of econometric biases. More specifically, we regress support for taxation of the rich on both beliefs about the rich and beliefs about the poor, and regress support for transfers to the poor on the same two beliefs (see Table A1 for question wording). We then test for the prediction that target-specific beliefs matter more both *within* and *across* these equations. That is, there are four predictions: (i) across equations, beliefs about the poor matter more when predicting preferences for transfers to the poor than when predicting preferences for taxes on the rich, (ii) within equations, beliefs about the poor matter more than beliefs about the rich when predicting preferences for transfers to the poor, (iii) across equations, beliefs about the rich matter more when predicting preferences for taxes on the rich than when predicting preferences for transfers to the poor, and (iv) within equations, beliefs about the rich matter more than beliefs about the poor when predicting taxes on the rich. Evidence for the whole pattern of four predictions helps address a host of econometric biases which might generate the results in the direction of one or two of the predictions, but not all four. For example, if beliefs about why the rich are rich are more strongly correlated with some other concept, such as expectations of upward mobility at the individual or intergenerational level (see Benabou and Ok 2001) or with income, this might generate spurious support for predictions (i) and (ii) but not predictions (iii) and (iv).

In the U.S. Gallup data, we find, first, that roughly 42% of U.S. respondents give different answers when asked, respectively, about the reasons for being rich and the reasons for being poor. This finding, that nearly half of the respondents have beliefs about the poor which differ from their beliefs about the rich, shows the importance of accounting for target-specific beliefs in explaining redistributive preferences. We also find robust support for the four predictions (outlined above) that target-specific beliefs matter more both within and across equations. Our preliminary analysis of the 2014 SOEP data shows that this pattern is replicated in Germany.

Finally, we present previously unreported results from a prior laboratory experiment on transfers of real money to real-world welfare recipients (Fong 2007) as a robustness check. We find that target-specific beliefs about the poor are associated with giving real money to real-world welfare recipients while beliefs about the rich and general beliefs about the causes of income have no significant effect.

The rest of this paper is organized as follows. Section 2 presents the model. Section 3 presents the analysis of the Gallup data and the German Socio-economic Panel data. Section 4 presents new analysis of the behavioral data from Fong (2007). Section 5 concludes.

2. The Model

2.1 Baseline: Two income classes with balanced budget constraint

There are two different income classes, rich and poor, and three different groups of people in terms of their effort choice or entitlement. The entitled rich receive high income y_h without investing in effort. The lazy poor choose low-effort investment and always receive low income y_l. The third group of people chooses high-effort investment, but the outcome of this investment is stochastic. If they obtain high income (y_h), they can be interpreted as the hard-working rich, and if they are unlucky and obtain low income (y_l), they can be interpreted as the industrious poor, who did not succeed despite their best efforts. The mass of agents belonging to income group $k, k \in \{l, h\}$ is m_k, with $m_l + m_h = 1$. The size of the income classes is common knowledge. The government levies a tax t on those with high incomes, and pays a transfer b to those with low income (if $b < 0$, then the government engages in regressive redistribution from those with low incomes to those with high incomes). The government can observe realized income, but not effort choice or status as part of the entitled rich. The government budget is balanced. In this case, choosing either the tax on the rich or the transfer to the poor determines the other one through the government budget constraint.

Those who choose high-effort investment obtain high income y_h with probability p, and low income with probability $1 - p$. These probabilities are not observed. Instead, agents form their beliefs about these, just as in Piketty (1995), and use these beliefs in their voting decisions. Redistributive preferences also depend on beliefs about the size of the group of the entitled rich. We denote individual j's belief about the population share of the entitled rich by r^j, and we denote individual j's perception of the probability of success with high effort by p^j. We denote the mass of agents who individual j expects to choose effort k, $k \in \{l, h\}$, by n_k^j (note that the entitled rich are not included in this calculation as they need not choose an effort). Beliefs about the stochastic income process and the type distribution must satisfy the condition that the expected shares of different income types correspond to the real shares:

$$m_l = n_l^j + (1 - p^j) n_h^j$$

$$m_h = p^j n_h^j + r^j.$$

Furthermore, beliefs about the share of the population choosing different actions or being part of the entitled rich must satisfy

$$n_l^j + n_h^j + r^j = 1.$$

If we fix n_l^j and r^j, the model implies that the probability of success with high effort investment is

$$p^j = 1 - \frac{m_l - n_l^j}{1 - n_l^j - r^j} = \frac{1 - m_l - r^j}{1 - n_l^j - r^j}.$$

The comparative statics gives $\frac{\partial p^j}{\partial r^j} < 0$ and $\frac{\partial p^j}{\partial n_l^j} > 0$. This is intuitive: with any given income distribution, an increase in the mass of the entitled rich means that a lower population share consists of the hard-working rich. This, in turn, translates into a lower probability of success with high-effort investment, with any given belief about the population share of the lazy poor. Similarly, if the share of the entitled rich is fixed, an increase in the perceived share of the lazy poor implies that the probability of success increases.

Individuals care about their own income and fairness. Individual j has utility

(1) $$U^j = u_j - \gamma^j \Omega^j.$$

Utility from private consumption is linear as in Piketty (1995) and Alesina and Angeletos (2005) and is given by $u_j = y_h - t$ if j has high income and $u_j = y_l + b$ if j has low income. Term $\gamma^j \Omega^j$ represents disutility generated by unfair social outcomes, and is otherwise as in Alesina and Angeletos (2005), with the difference that we include an individual-specific weight γ^j, $\gamma^j > 0$, while Alesina and Angeletos model it as an identical term for everyone in society.[1] We follow Alesina and Angeletos (2005) in defining fairness as a common conviction that one should get what one deserves, and deserve what one gets. We define a belief in what one deserves based on one's chosen action. Those choosing high effort are perceived to deserve high income and those choosing low effort low income. The entitled rich deserve low income as they do not invest in effort. Denoting individual *j*'s perception of agent *k*'s realized utility by u_k^j and of agent *k*'s "fair" level of utility by $\hat{u}_k^j$, the measure of social injustice is given by

$$\Omega^j = \int_{k=0}^{1} (u_k^j - \hat{u}_k^j)^2 dk.$$

Using the individual beliefs, the perceived social injustice reads as

(2) $$\Omega^j = n_l^j b^2 + (m_l - n_l^j)(y_h - y_l - b)^2 + (m_h - r^j)t^2 + r^j(y_h - t - y_l)^2.$$

The first term captures the difference between what those who choose low effort deserve and what they get, the difference being entirely driven by the transfers. The second term captures the difference between what those who invested in high effort but failed deserve and what they get. The third term refers to the injustice from those who chose high effort and succeeded being taxed, and the last term the undeservedly high income of the entitled rich.

[1] Some particularly relevant notions of fairness include equity theory (Walster, Walster and Berscheid, 1978, Morton Deutsch 1985). Models of inequality and inequity aversion are also relevant. See, for instance, Fehr and Schmidt (1999).

Without loss of generality, we assume that decisions on the government budget take place on the tax on the rich. The poor receive then a transfer $b = \frac{(1-m_l)t}{m_l}$. A poor individual then has utility

$$U^j = y_l + \frac{(1-m_l)t}{m_l} - \gamma^j \left[n_l^j \frac{(1-m_l)^2 t^2}{m_l^2} + (m_l - n_l^j)\left(y_h - y_l - \frac{(1-m_l)t}{m_l}\right)^2 + (m_h - r^j)t^2 + r^j(y_h - t - y_l)^2 \right].$$

Taking the first-order condition and solving it results in the preferred tax rate by individual *j*:

$$t^j = \frac{1}{2\gamma^j} + \left[\left(m_l - n_l^j\right) + r^j \frac{m_l}{1-m_l}\right](y_h - y_l). \quad (3)$$

This is unambiguously positive.

A rich individual has utility

$$U^j = y_h - t - \gamma^j \left[n_l^j \frac{(1-m_l)^2 t^2}{m_l^2} + \left(m_l - n_l^j\right)\left(y_h - y_l - \frac{(1-m_l)t}{m_l}\right)^2 + \left(m_h - r^j\right)t^2 + r^j(y_h - t - y_l)^2 \right].$$

Solving the first-order condition gives

$$t^j = -\frac{m_l}{2\gamma^j(1-m_l)} + \left[\left(m_l - n_l^j\right) + r^j \frac{m_l}{1-m_l}\right](y_h - y_l). \quad (4)$$

The first term is negative and the second one is positive, so the sign is ambiguous. Interestingly, the second terms of (3) and (4) are identical, and we have

Proposition 1.$\forall j$: (i) $\frac{\partial t^j}{\partial r^j} = \frac{m_l}{1-m_l}(y_h - y_l)$ and (ii) $\frac{\partial t^j}{\partial n_l^j} = -(y_h - y_l)$.

Proof. Follows by differentiating equations (3) and (4).

Whatever the self-interest component, the preferred tax on the rich is increasing in the perceived share of the entitled rich and decreasing in the perceived share of the lazy poor. The same holds by the government budget constraint for transfers to the poor. There is no scope for analyzing separately target-specific redistributive preferences with just two groups.

2.2. Three income classes with balanced budget constraint

Assume next that there are three income classes, corresponding to low income (y_l), intermediate income (y_i) and high income (y_h), and four different groups in terms of their effort choice or entitlement. The groups of entitled rich and lazy poor are as in the previous subsection. Unlike in the previous subsection, we now assume that those who choose high effort obtain high income with certainty. The stochastic income process pertains to the group that chooses intermediate effort investment. If successful, intermediate effort investment results in intermediate income, and if unsuccessful in low income.

Total population mass is still normalized to one. The mass of low-income citizens is denoted by m_l and the mass of high-income citizens by m_h, giving as the mass of intermediate income citizens $1 - m_l - m_h$. We denote the tax on the intermediate incomes by t_i and the tax on high incomes by t_h. The transfer to those with low incomes is denoted by b. This gives as the government budget constraint $m_l b = (1 - m_l - m_h)t_i + m_h t_h$, resulting in

(5) $\quad t_i = \frac{m_l b - m_h t_h}{1 - m_l - m_h}$.

We now denote by p^j individual j's perception of the probability of success with intermediate effort, while n_l^j and r^j are as previously and n_i^j denotes the belief about the number of those choosing intermediate effort. Beliefs about the stochastic income process and the type distribution must satisfy the condition that the expected shares of different income types correspond to the real shares:

$$m_l = n_l^j + (1 - p^j)n_i^j$$

$$m_i = p^j n_i^j$$

$$m_h = n_h^j + r^j.$$

The perceived social injustice is

$\Omega^j = n_l^j b^2 + \left(m_l - n_l^j\right)(y_m - y_l - b)^2 + (1 - m_l - m_h)t_i^2 + r^j(y_h - t_h - y_l)^2 + (m_h - r^j)t_h^2$.

Inserting (5) gives:

(6) $\Omega^j = n_l^j b^2 + \left(m_l - n_l^j\right)(y_m - y_l - b)^2 + \frac{(m_l b - m_h t_h)^2}{1 - m_l - m_h} + r^j(y_h - t_h - y_l)^2 + (m_h - r^j)t_h^2$.

Inserting (6) into $U^j = y_h - t_h - \gamma^j \Omega^j$, differentiating with respect to t_h and b, and solving gives as the preferred tax and transfer by a high-income citizen

(7) $t_h^j = -\frac{1 - m_h}{2\gamma^j m_h} + \left(m_l - n_l^j\right)(y_m - y_l) + \frac{r^j(1 - m_h)(y_h - y_l)}{m_h}$

(8) $b^j = -\frac{1}{2\gamma^j} + \frac{(1 - m_l)(m_l - n_l^j)(y_m - y_l)}{m_l} + r^j(y_h - y_l)$.

Correspondingly, inserting (5) and (6) into $U^j = y_i - t_i - \gamma^j \Omega^j$ and differentiating this with respect to t_h and b allows solving the preferred t_h and b of a middle-class person:

(9) $t_h^j = \frac{1}{2\gamma^j} + (m_l - n_l^j)(y_m - y_l) + \frac{r^j(1-m_h)(y_h-y_l)}{m_h}$

(10) $b^j = -\frac{1}{2\gamma^j} + \frac{(1-m_l)(m_l-n_l^j)(y_m-y_l)}{m_l} + r^j(y_h - y_l)$.

Finally, the preferred tax and transfer of a poor person are:

(11) $t_h^j = \frac{1}{2\gamma^j} + (m_l - n)(y_m - y_l) + \frac{r^j(1-m_h)(y_h-y_l)}{m_h}$

(12) $b^j = \frac{1-m_l}{2\gamma m_l} + \frac{(1-m_l)(m_l-n_l^j)(y_m-y_l)}{m_l} + r^j(y_h - y_l)$.

The effects of beliefs on redistributive preferences can be summarized as

Proposition 2.$\forall j$: (i) $\frac{\partial t_h^j}{\partial r^j} = \frac{(1-m_h)(y_h-y_l)}{m_h}$; (ii) $\frac{\partial t_h^j}{\partial n_l^j} = -(y_m - y_l)$; (iii) $\frac{\partial b^j}{\partial r^j} = (y_h - y_l)$; (iv) $\frac{\partial b^j}{\partial n_l^j} = -\frac{(1-m_l)(y_m-y_l)}{m_l}$.

Proof. Follows by differentiating equations (7) to (12).

Proposition 2 shows that even though income groups differ in their preferred taxes and transfer as shown by equations (7) to (12), their preferred taxes and transfers react identically to changes in beliefs about the economy-wide parameters. The testable prediction is that once controlling for own income, beliefs about the causes of low and high incomes have similar effects on preferred taxes on those with high incomes and preferred support to those with low incomes. Preferred tax on the rich increases in the believed mass of entitled rich and decreases in the believed mass of lazy poor. Similarly, preferred transfer to the poor increases in the believed mass of entitled rich and decreases in the believed mass of lazy poor.

By equation (5), we can calculate also the effect on preferred tax on the middle class:

$$\frac{\partial t_i^j}{\partial r^j} = \frac{m_l(y_h - y_l) - (1 - m_h)(y_h - y_l)}{1 - m_l - m_h} = -(y_h - y_l) < 0$$

$$\frac{\partial t_i^j}{\partial n_l^j} = \frac{-(1 - m_l)(y_m - y_l) + m_h(y_m - y_l)}{1 - m_l - m_h} = -(y_m - y_l) < 0.$$

Therefore, increases in the perceived mass of entitled rich and of the lazy poor both decrease preferred tax on the middle class.

Different preferences towards income redistribution can arise between individuals with identical incomes in two ways: through different beliefs about the share of the entitled rich and of the lazy poor, and through

different weights given to the disutility generated by unfair social outcomes. Importantly, either of these channels suffices. For example, assuming identical weight parameters in the utility function would imply that different preferences within an income group would be driven solely by different beliefs about the economy.

2.3 Two income classes without balanced budget constraint

So far, we have assumed that the government budget constraint has always to be balanced. In this subsection, we show what are the effects of allowing the government to run budget surplus or deficit, or to have other uses of tax revenues that are also valued. Otherwise, the income-generating process and beliefs are as in subsection 2.1. Individuals care about their own income, public finances and fairness. Individual j has utility

(13) $$U^j = u_j + \lambda^j T^j - \gamma^j \Omega^j.$$

Government budget surplus or deficit is given by $T^j = (1 - m_l)t - m_l b$. Term $\lambda^j T^j$ captures how much individual j values the government budget surplus or deficit, with $\lambda^j \geq 0$. This is a more general way of modelling the effects of the government budget constraint in analyses of redistributive politics than by assuming a balanced budget constraint. As the individual shadow price λ^j can be adjusted, our model can always also be solved with λ^j set at a level that results in the government budget being balanced. However, allowing the shadow price of public funds to differ from this helps capture the stylized fact that many voters may support policies that do not balance the budget.

By inserting $u_j = y_l + b$ and (2) into (13), differentiating with respect to b, setting the first-order condition equal to zero and then solving with respect to b allows to solve the transfer that a low-income person prefers for the low-income group:

(14) $$b^j = \frac{1}{2\gamma^j m_l} - \frac{\lambda^j}{2\gamma^j} + \frac{\left(m_l - n_l^j\right)}{m_l}(y_h - y_l).$$

This is unambiguously positive as long as one's own consumption is valued at least as much as government surplus. Low-income voters' preferred tax on the high-income group is:

(15) $$t^j = \frac{\lambda^j}{2\gamma^j} + \frac{r^j}{m_h}(y_h - y_l).$$

This is also unambiguously positive. Low-income voters support taxing the rich even when there is no direct link between transfers to the poor and taxes on the rich. The preferred tax is increasing in the valuation of government net revenue and in the perceived share of the entitled rich.

By inserting $u_h = y_h - t$ and (2) into (13), differentiating with respect to b, setting the first-order condition equal to zero and then solving with respect to b allows us to solve the transfer that a high-income person prefers for the low-income group:

(16) $$b^j = -\frac{\lambda^j}{2\gamma^j} + \frac{\left(m_l - n_l^j\right)}{m_l}(y_h - y_l).$$

The sign is open: valuation for government revenue pushes for a negative transfer, corresponding to a positive tax, fairness concerns for a positive transfer. The higher the perceived share of the lazy poor, the lower is the preferred transfer (implying a higher tax, if negative). The preferred tax for the high-income group is:

(17) $$t^j = -\frac{1}{2\gamma^j m_h} + \frac{\lambda^j}{2\gamma^j} + \frac{r^j}{m_h}(y_h - y_l).$$

The sign is ambiguous. The first term of the right-hand side, capturing self-interest, pushes for a negative tax, while the second term (valuation of government tax revenue) and the third term (capturing fairness considerations) push for a positive tax.

Taken together, our model implies the following testable predictions:

Proposition 3.$\forall y_j, \lambda^j, \gamma^j$: (i) $\frac{\partial b^j}{\partial n_l^j} = -\frac{y_h - y_l}{m_l}$; (ii) $\frac{\partial b^j}{\partial r^j} = 0$; (iii) $\frac{\partial t^j}{\partial n_l^j} = 0$; (iv) $\frac{\partial t^j}{\partial r^j} = \frac{y_h - y_l}{m_h}$.

Proof. Follows by differentiating equations (14) to (17).

Proposition 3 implies that with given weights in the utility function, preferred transfers to the poor are decreasing in the share of the lazy poor and independent of the share of entitled rich, both among those who have low incomes and those who have high incomes. Correspondingly, preferred taxes on the rich are independent of the perceived share of lazy poor, and increasing in the perceived share of the entitled rich.

Comparing Propositions 1, 2 and 3 shows that with a constant shadow price of public funds, only target-specific beliefs matter for redistributive preferences in addition to self-interest, while with a balanced budget constraint, also beliefs about the other groups matter. Extrapolating between these polar cases suggests that if government budget constraint matters but need not necessarily be satisfied in every period, target-specific beliefs should matter for each redistributive policy more than beliefs concerning the other groups.

2.4. Decisions on redistribution before realizations of investments are revealed

So far, we have analyzed preferred taxes assuming that these are chosen after income realizations have been revealed. Assume next that the decisions on preferred taxes are made after effort choices have been made, but before the realizations are revealed, in a setting otherwise similar to the previous subsection (extension to the balanced budget constraint would follow similar logic). The preferences of those who made no effort investment (lazy poor and entitled rich) remain as in section 2.3. The maximization problem for someone who has made a high effort investment but does not know its realization is given by

$$U^j = p^j(y_h - t) + \left(1 - p^j\right)(y_l + b) + \lambda^j T^j - \gamma^j \Omega^j.$$

This person prefers the following transfer and tax:

$$b^j = \frac{1 - p^j}{2\gamma^j m_l} - \frac{\lambda^j}{2\gamma^j} + \frac{(m_l - n_l^j)}{m_l}(y_h - y_l)$$

$$t^j = -\frac{p^j}{2\gamma^j m_h} + \frac{\lambda^j}{2\gamma^j} + \frac{r^j}{m_h}(y_h - y_l).$$

Inserting $p^j = 1 - \frac{m_l - n_l^j}{1 - n_l^j - r^j} = \frac{1 - m_l - r^j}{1 - n_l^j - r^j}$ gives

$$(18) \qquad b^j = \frac{\frac{m_l - n_l^j}{1 - n_l^j - r^j}}{2\gamma^j m_l} - \frac{\lambda^j}{2\gamma^j} + \frac{\left(m_l - n_l^j\right)}{m_l}(y_h - y_l) = \frac{1 - \frac{1 - m_l - r^j}{1 - n_l^j - r^j}}{2\gamma^j m_l} - \frac{\lambda^j}{2\gamma^j} + \frac{\left(m_l - n_l^j\right)}{m_l}(y_h - y_l)$$

$$(19) \qquad t^j = -\frac{\frac{1 - m_l - r^j}{1 - n_l^j - r^j}}{2\gamma^j m_h} + \frac{\lambda^j}{2\gamma^j} + \frac{r^j}{m_h}(y_h - y_l) = -\frac{1 - \frac{m_l - n_l^j}{1 - n_l^j - r^j}}{2\gamma^j m_h} + \frac{\lambda^j}{2\gamma^j} + \frac{r^j}{m_h}(y_h - y_l).$$

Equations (18) and (19) allow deriving the effects of target-specific beliefs on redistributive preferences parallel to Proposition 3:

Proposition 4.$\forall\, \lambda^j, \gamma^j$: (i) $\frac{\partial b^j}{\partial n_l^j} < 0$; (ii) $\frac{\partial b^j}{\partial r^j} > 0$; (iii) $\frac{\partial t^j}{\partial n_l^j} < 0$; (iv) $\frac{\partial t^j}{\partial r^j} > 0$.

Proof. Follows by differentiating equations (18) and (19).

Unlike in Proposition 3, Proposition 4 shows that target-specific beliefs have effects also an effect on the preferred redistributive policies towards the other group. This reflects insurance incentives. With any given r^j, a higher n_l^j implies a higher p^j. This reduces the preferred insurance, thereby reducing not just

b^j but also t^j for those who invested in high effort but do not yet know their realization. Correspondingly, with any given n_i^j, a higher r^j implies a lower p^j, increasing demand for insurance.

2.5 Endogenous effort with three income classes and balanced budget requirement

Assume next that we are in a setting otherwise as in subsection 2.2 but the choice between low and intermediate effort is endogenous. In this case, there can be multiple equilibria. To see this, assume that the cost of intermediate effort investment is c and that this is common knowledge and that the political process sets first tax on the rich t_h and transfer to the poor b, and that the tax on those with intermediate incomes adjusts to balance the budget. Denote the expected tax on those with intermediate incomes by t_i^e. The probability that intermediate effort investment by individual *j* results in intermediate income, p^j, is private knowledge. Individual *j* invests in intermediate effort if and only if $p^j(y_i - t_i^e) + (1 - p^j)(y_l + b) - c > y_l + b$. This gives

$$p^j > \frac{c}{y_i - y_l - b - t_i^e}.$$

For any given t_h and $b, b > 0$, t_i^e is decreasing in the mass of those choosing intermediate effort investment (as long as $b + t_i^e > 0$, implying that those with intermediate income are either net payers to redistribution or at least receive lower transfers than the poor). For any two equilibria with a given *b*, the one with a higher t_i^e is associated with lower investment in effort (= higher ability threshold to make intermediate investment in effort in terms of probability of success), thereby leading into a lower tax base and more low-income agents needing support. Therefore, the low-redistribution equilibrium is associated with higher effort than high-redistribution equilibrium if we take the prevailing tax policies as given. However, this need not be the case once we account for strategic political responses. If the political power belongs to the high-income group, they may strategically discourage intermediate effort investment and prefer an equilibrium with large number of lazy poor to an equilibrium with a smaller number of industrious poor. The intuition for this is that the lazy poor are not morally entitled to transfers, so those with high incomes feel that low-redistribution society is just. If, instead, a large share of the poor would be industrious then the rich would feel morally obliged to support them.

To show this in a simple setting, assume that there are no entitled rich, p is common knowledge, $m_h = 0.5$, the rich are politically decisive and they all have the same γ. If the economy is in an equilibrium in which everyone chooses either high or low effort investment, $b = t_h$ and the rich choose b to maximize $U^j = y_h - b - \gamma(0.5b^2 + 0.5b^2)$.

Differentiating and solving the first-order condition gives $b = -\frac{1}{2\gamma}$. Therefore, high-effort agents prefer to engage in regressive redistribution, but are restricted in this by their social justice considerations. Assume next that the alternative is to choose b and t_i optimally so that intermediate investment becomes optimal. In that case

$t_h = (1-p)b - pt_i$.

The utility is given by

$$U^j = y_h - (1-p)b + pt_i - \gamma\left(0.5((1-p)b - pt_i)^2 + 0.5(1-p)(y_i - y_l - b)^2 + 0.5pt_i^2\right)$$

The first-order conditions are

$$-(1-p) - \gamma\left[(1-p)\left((1-p)b - pt_i\right) - (1-p)(y_i - y_l - b)\right] = 0$$

$$p - \gamma\left[-p\left((1-p)b - pt_i\right) + pt_i\right] = 0.$$

The second-order conditions are satisfied, so the first-order conditions give the maximum utility. The second first-order condition yields

$$t_i = \frac{1 + \gamma(1-p)b}{\gamma(1+p)}.$$

Inserting this into the first first-order condition gives

$$-(1-p) - \gamma\left[(1-p)\left((1-p)b - p\frac{1+\gamma(1-p)b}{\gamma(1+p)}\right) - (1-p)(y_i - y_l - b)\right] = 0.$$

Solving this gives

$$b = -\frac{1}{2\gamma} + \frac{(1+p)(y_i - y_l)}{2}.$$

Inserting this into the solution for t_i gives

$$t_i = \frac{1}{2\gamma} + \frac{(1-p)(y_i - y_l)}{2}.$$

Note that with these values, intermediate effort investment is optimal only with zero costs, while with any positive c the policies pursued by those expecting high incomes discourage investment in intermediate effort. To show that the rich may want to actively discourage effort that could help the poor to escape poverty, assume that *c=0*. In that case, the government budget constraint with the optimally chosen t_i and b gives

$$t_h = (1-p)b - pt_i = -\frac{1}{2\gamma} + \frac{(1-p)(y_i - y_l)}{2}.$$

Therefore, transfer to those with high incomes is now smaller than without investment in intermediate effort. As for Ω, we have

$$\Omega = 0.5\left(-\frac{1}{2\gamma}+\frac{(1-p)(y_i-y_l)}{2}\right)^2+\frac{p}{2}\left(\frac{1}{2\gamma}+\frac{(1-p)(y_i-y_l)}{2}\right)^2$$
$$+\frac{1-p}{2}\left(y_i-y_l+\frac{1}{2\gamma}-\frac{(1+p)(y_i-y_l)}{2}\right)^2.$$

Simplifying gives

$$\Omega = 0.5\left(-\frac{1}{2\gamma}+\frac{(1-p)(y_i-y_l)}{2}\right)^2+\frac{p}{2}\left(\frac{1}{2\gamma}+\frac{(1-p)(y_i-y_l)}{2}\right)^2+\frac{1-p}{2}\left(\frac{1}{2\gamma}+\frac{(1-p)(y_i-y_l)}{2}\right)^2$$
$$\Omega = \frac{1}{2}\left(\frac{1}{2\gamma^2}+\frac{(1-p)^2(y_i-y_l)^2}{4}\right).$$

Therefore, Ω is larger with intermediate effort investment than without it. As a result, high-effort agent would prefer to prevent investment in intermediate effort even if it would be costless. This can be done by choosing prohibitively high taxes on intermediate incomes. If everyone chooses low effort investment, then they do not deserve more than low incomes.

To sum up: accounting for endogenous effort choices can result in multiple equilibria. If we do not account for political responses but take the transfer to the poor and the tax on the rich as given, then if there are multiple equilibria then the low-redistribution ("American") equilibria are associated with lower tax on the middle class and higher effort investment than high-tax ("European") equilibria in which a high tax burden on the middle-class results in a low effort equilibrium, in line with Piketty (1995), Alesina et al. (2001), Hassler et al. (2003) and Benabou and Tirole (2006). Accounting for the political responses can reverse the conclusions: those with high incomes may strategically discourage effort investment by those who choose between low and intermediate effort investment to keep the poor undeserving of their support. This could help to explain policies that reduce the equality of opportunity even when they would be fiscally cost-effective, like the persistence of poverty traps in which effort does not pay off. It may also help to explain why some countries, like Scandinavian welfare states, have been able to maintain high levels of redistribution with high educational investment, especially after marginal tax rates on high incomes were reduced especially in 1990s. If the political process tends to be driven by those with intermediate incomes, rather than those with very high incomes, then the outcome can be a pro-intermediate-effort equilibrium in which the middle class supports a generous safety net, but also aims to ensure that intermediate effort pays off. One way to achieve this are universal services and benefits, like tax-financed education and public healthcare and child benefits that are independent of family income. In the United States, means-testing the benefits increases the effective marginal tax rates well above statutory rates at the income range in which the benefits are phased out. Furthermore, campaign contributions that tend to favor the wealthy play a much bigger role and the turnout rates are much lower,

especially among those with low incomes, further strengthening the political power of those with high incomes.

2.6 Intergenerational perspective

Our model framework can be extended to cover intergenerational perspective. Assume that parents decide on investments in their children, accounting for how redistribution is going to affect their children in the future. In that case, we can re-interpret the entitled rich as those dynasties with enough inherited wealth or connections to ensure that their children end up with high incomes. High effort choices would be taken by dynasties with well-to-do parents and children who can obtain high incomes if they invest in effort, thanks to good initial circumstances and opportunity to get a place in a good university. Families that are initially poor, or struggling at the risk of poverty, would be the ones choosing between low and intermediate investment. Therefore, their children would face a risk of poverty even if doing their best.

Heckman (2006) summarizes extensive evidence that in the United States, "[m]any major economic and social problems can be traced to low levels of skill and ability in the population." Our framework helps to understand why early interventions that everyone should agree on from efficiency and equality of opportunity perspective may politically fail. The entitled rich and dynasties who can ensure their success by investing in their children's education may prefer a low-effort-equilibrium in which there are more poor people, but they can be viewed as undeserving, to an equilibrium in which the society would support early interventions even when there is no guarantee on their success, and those who have failed despite their best efforts would be viewed as deserving industrious poor, calling for more redistribution. The lack of support for early interventions would be then explained by political economy considerations, and could explain why even interventions that have so high social returns that they would pay for themselves might not get support by rich dynasties.

3. Survey Data and Analysis

3.1 Summary Analysis

We begin with data from a 1998 Gallup Organization social audit (Gallup 1998), a national telephone survey in the United States of 5001 individuals who were 18 years of age or older. The dataset contains measures of beliefs about the roles of effort and luck in explaining why people are poor (*WHYPOOR*) and rich (*WHYRICH*), respectively with nearly identical wording and response scales. It also contains one

question about support for taxes on the rich (*TAXRICH*) and one about support for government transfers to the poor (*TRANSFERPOOR*).[2] Table A1, Panel A in the appendix presents the question wording.

Table 1 presents summary statistics for the Gallup survey questions used in this paper. According to the dependent measures, 69% of subjects who responded to *TRANSFERPOOR* said they support governmental redistribution to the poor. Of those who responded to *TAXRICH*, 45% support redistribution of wealth by heavy taxes on the rich. Forty-four percent of respondents said that poverty is caused by lack of effort. Fifty-six percent reported that wealth is caused by strong effort. Table A2 also presents summary statistics for the socioeconomic variables and subjective measures of financial security included in the regressions.

Table 2 presents cross-tabulations of two questions about the reasons for people being rich and the reasons for people being poor. The diagonal shows the numbers of observations, and row and column percentages, of respondents who gave the same response to each question. For a given response to one question, the percentage of respondents who gave the same response to the other question ranges from roughly 48% to 70%. Overall, 42% of respondents do not give the same answer to both measures of beliefs. The difference between the two answers is not driven by the intermediate category allowing respondents to state that both effort and luck matter. A striking 30% of respondents state either that being rich reflects strong effort while being poor is due to bad luck, or that being rich is a result of good luck and being poor is caused by lack of effort.

Table 3 presents a cross-tabulation of support for taxation of the rich and support for transfers to the poor. Here again, a substantial percentage (41.5%) of respondents do not give the same answer to both measures of support for redistribution. These respondents either oppose taxing the rich but support transfers to the poor, or vice versa.

3.2. Analysis of Target-Specific Beliefs Effects

We test the null hypothesis that the effect of a target-specific belief on support for redistribution equals the effect of non-target-specific beliefs. To this end, we estimate the following two equations:

$$TRANSFERPOOR = \beta_0 + \beta_1 WHYRICH + \beta_2 WHYPOOR + \boldsymbol{XB} + u_1$$

$$TAXRICH = \gamma_0 + \gamma_1 WHYRICH + \gamma_2 WHYPOOR + \boldsymbol{XB} + u_2$$

[2] We coded "don't know" responses as missing. Thus, this sample should be interpreted as being drawn from the population of people who know their preferences and are not indifferent. The coding makes little difference for the results.

Where *TRANSFERPOOR* and *TAXRICH* equal one if the respondent supports redistribution and zero if the respondent opposes redistribution, *WHYRICH* and *WHYPOOR* increase in beliefs that luck matters (see Table A1 for exact wording), and **X** is a matrix of socioeconomic variables.

We test for a pattern showing larger effects of target-specific beliefs both within equations and across equations. That is, we test the following hypotheses:

Within-Equation Tests		Cross-Equation Tests	
Test 1	Test 2	Test 3	Test 4
H_0: $\beta_2 = \beta_1$ H_A: $\beta_2 > \beta_1$	H_0: $\gamma_1 = \gamma_2$ H_A: $\gamma_1 > \gamma_2$	H_0: $\beta_2 = \gamma_2$ H_A: $\beta_2 > \gamma_2$	H_0: $\gamma_1 = \beta_1$ H_A: $\gamma_1 > \beta_1$

This series of tests rules out a host of alternative explanations, because many econometric problems may bias the results in the direction of one of the predictions, but not all of them. For example, imagine that $\gamma_1 = 0$, but our estimate is biased upward because of measurement error bias or omitted variables bias, leading to a spuriously significant estimated effect of WHYRICH on TAXRICH. Such a measurement bias might occur, for instance, if income is poorly measured, and both WHYRICH and TAXRICH are correlated with income. In this example, measurement error in income might explain why $\gamma_1 > \gamma_2$, and possibly even why $\gamma_1 > \beta_1$, if TRANSFERPOOR is not strongly correlated with income compared to TAXRICH. However, this measurement error problem by itself would not explain why $\beta_2 > \beta_1$ or why $\beta_2 > \gamma_2$. As the following analysis will show, we find robust support all four of these tests.

It is worth noting that *WHYPOOR* and *WHYRICH* have nearly identical wording and response scales, which helps to hold relatively constant the subjects' interpretations of the questions and the extent of measurement error across the two measures. This clean wording appears in both the U.S. Gallup data and the German SOEP data. The U.S. Gallup measures of TRANSFERPOOR and TAXRICH are not written as identically as possible, but nonetheless clearly ask about support for a transfer policy to the poor and support for a tax on the rich, and are far superior to any other measures in American data that we have seen for this test. As for the German SOEP questions, we wrote these ourselves for this research. They are written identically except where necessary to distinguish between transfers to low income earners and taxes on high income earners. Thus, the SOEP data provide an important robustness check to the findings with American data, not only because they are from another country and time period, but also because the questions on preferences for redistribution are more cleanly written.

Table 4 presents OLS regressions, using the Gallup data, of *TRANSFERPOOR* and *TAXRICH* on dummy variables for the response categories to *WHYPOOR* and *WHYRICH*. The response that only effort matters is the omitted category. Columns 1 and 3 present baseline estimates of the effect of the *WHYPOOR*

and *WHYRICH* dummies only on *TRANSFERPOOR* and *TAXRICH*, respectively. Columns 2 and 4 include a large number of background variables including dummies for eight income categories (a ninth category is omitted), dummies for seven education categories, age, age squared, sex, a dummy for white, dummies for five marital status categories, a dummy for dependent children living at home, two employment status dummies, and dummies for suburban and rural residence versus urban. In all models, the effects of believing in luck versus effort are highly significant and in the expected direction (positive). Furthermore, all four of the predictions above are supported. Both the pattern of coefficient sizes and the formal statistical tests show that beliefs about causes of being poor have larger effects on support for transfers to the poor while beliefs about the causes of being rich have larger effects on support for taxation of the rich. Hypotheses 1 and 2 were tested with Wald tests of linear combinations. Hypotheses 3 and 4 were tested with a version of the cross-model, same-sample Wald test provided in STATA's sureg command. All of the statistical tests are significant at the one-percent level.

Tables 5 and 6 present preliminary results from our questions in the 2014 German Socio-Economic Panel. Table 5 estimates equations predicting *TRANSFERPOOR*. It shows that *WHYPOOR* beliefs have much larger effects within this equation than *WHYRICH* beliefs. Table 6 estimates equations predicting *TAXRICH*. It shows that *WHYRICH* beliefs have much larger effects within this equation than *WHYPOOR* beliefs. Comparing across these tables, we can also see that the effect of *WHYPOOR* is larger when predicting *TRANSFERPOOR*, and the effect of *WHYRICH* is larger when predicting *TAXRICH*.

4. Behavioral results: transfers of real money to real welfare recipients

This section presents new results from a prior randomized experiment on giving of real money to real-life welfare recipients (Fong 2007), analyzing the effects of target-specific and non-target-specific beliefs. Full details on the experimental design and procedures are presented in Fong (2007), but we summarize them briefly here. The experiment was an n-donor dictator game in which subjects (dictators) were randomly matched with one of three types of real-life welfare recipients. The welfare recipients differed according to their self-reported work preferences and work histories, but were otherwise identical in terms of the characteristics presented to dictators. About one week prior to the experiment, dictators completed an online survey with attitudinal measures of beliefs. At the experiment, dictators were paid a show-up fee and endowed with an additional ten dollars to play with during the experiment (the "pie"). In a private room, each dictator read a survey completed by his or her welfare recipient. The survey communicated the welfare recipient's demographic characteristics and work preferences and work histories. The dictator then decided how much, if any, of the ten dollars to give to the recipient. Finally, dictators completed an exit survey with additional belief and attitudinal measures and left the experiment. The dependent variable is the offer

made to the welfare recipient. The independent variables are various measures about the causes of income, success and failure and information about the recipient's attachment to the labor force.

The recipients were all single black mothers on "welfare" but differed according to their answers to the questions about work preferences and work histories. Three treatment conditions differed according to information about the recipient that was visible on a survey the recipient had completed. On one condition, subjects were paired with a recipient who reported not wanting to work full-time, not looking for work, and never having held a job for more than one year. In a second condition, each subject was paired with a recipient who reported wanting to work full-time, looking for work, and having held a job for more than one year at some point in the past. In a third condition, we omitted the questions on work preferences and work history from the recipient's survey, so dictators were paired with a recipient for whom this information was unavailable.

We analyze the effects of three independent variables: (i) prior target-specific beliefs about the causes of poverty and failure, which mirror the Gallup *WHYPOOR* measure analyzed above, (ii) prior non-target-specific beliefs about the causes of wealth and success, which mirror the Gallup *WHYRICH* measure analyzed above, and (iii) an exit survey measure of target-specific beliefs about why the dictator's recipient is poor, which we use directly in some specifications and in other specifications we instrument it with the randomly assigned treatment conditions.

4.1. Effects of prior beliefs on giving

During the week prior to the experiments, subjects visited a web site where they registered for the experiment and completed an attitudinal survey. The survey included eight measures of prior beliefs about causes of good or bad outcomes (failure, success, being poor, being rich). Three were target-specific beliefs (in the context of giving to welfare recipients) about the causes of economic outcomes for poor people or people who do not succeed. The other five questions were non-target-specific, including four on general beliefs about chances or opportunities for success for "anyone" or "people" and one on the causes of income for rich people. The exact wording of the questions and their Spearman rank correlation coefficients with offers are presented in Table 7. The table also indicates the source of the question wording. Five of the questions came from a well-established measure from psychology of the Protestant work ethic (Katz and Hass 1989). The other three are revised versions of questions from the Gallup survey used above.

Panel A presents the target-specific beliefs. Two of them have significant Spearman rank correlation coefficients with offers at the five-percent level. The p-value for the third is 0.057. Panel B presents the non-target-specific and general beliefs. None of these have significant correlations with offers. Combining questions into a single measure may increase measurement reliability. Thus, for each panel, we also present

correlations between offers and the first principle component of the questions in that panel. In Panel A, the Spearman rank correlation coefficient between the first principal component of the target-specific beliefs questions and offers is significant (p=0.010), while in Panel B, the Spearman rank correlation coefficient between the aggregate measure of non-target-specific beliefs and offers is insignificant (p = 0.500)

Table 8 summarizes these results with Tobit regressions. Column 1 regresses offers on the first principal component of the target-specific beliefs from Panel A of Table 7. This independent measure is standardized. Thus, the coefficient means that a one standard deviation increase in the target-specific beliefs measure is associated with a $0.97 increase in offers (significant at the one-percent level). Column 2 regresses offers on the first principal component of the non-target specific beliefs from Panel B of Table 7. This effect is statistically insignificant. Column 3 includes both beliefs measures. In column 3, a standard deviation increase in target-specific beliefs is associated with a $1.07 increase in offers (significant at the one-percent level). The effect of non-target-specific beliefs is statistically insignificant.

4.2. Effects of exit survey beliefs about the dictator's own recipient

The exit survey contained the following question: "Which if the following explains why your recipient is poor? a) lack of effort on his or her part, b) circumstances beyond his or her control or c) both." These beliefs have highly significant effects (at the one-percent level) on offers in the expected direction.

However, responses to this question may be endogenous to offers because subjects who gave less money for some reason other than their beliefs about the recipient – say, in error or for idiosyncratic reasons – may rationalize their offers with their beliefs. As a robustness check, we estimate a two-stage least squares regression in which the exit survey question is instrumented with the randomly assigned treatment conditions and the target-specific beliefs measured approximately one week prior to the experiment. The effect of the predicted target-specific belief is in the expected direction and significant at the one-percent level.

5. Conclusion

It is widely accepted that beliefs about the poor matter in support for transfers to the poor, and that general beliefs about causes of income (and mobility) matter is support for general income redistribution from the rich to the poor. However, literatures on these two different questions have evolved separately, and it is not obvious how they connect. We take a first step toward linking these two literatures with a model of target-specific beliefs and redistribution that follows models of general beliefs and redistribution. Using three different data sources, including (i) a 1998 Gallup Social Audit, (ii) social

survey questions written by us and collected in a special module of the 2014 German Socioeconomic panel, and (iii) new analysis of experimental data on transfers of real money to real welfare recipients collected and previously reported by one of us (Fong 2007). We find that a large fraction of respondents have beliefs about why someone is rich which differ from their beliefs about why someone is poor, showing the importance of understanding the role of target-specific beliefs in redistribution. We also find strong support for a pattern of four predictions from our model, showing a robust role for target-specific beliefs in redistribution.

We also show that low tax equilibria may, but need not be associated with higher efficiency. If we take prevailing taxes on those with high and low incomes as given, then there is traditional efficiency-equity trade-off in which if there are multiple equilibria then the equilibrium with lower taxes on the middle class is associated with higher effort. However, this need not be the case once we account for strategic political responses. If the political power belongs to the high-income group, they may strategically discourage intermediate effort investment by those choosing between low and intermediate investment and prefer an equilibrium with large number of poor who did not even try to make it to the middle class to an equilibrium with a smaller number of industrious poor. Extending to the intergenerational context, our model can explain why early education interventions that would improve educational attainment of those choosing between low and intermediate investment may fail to gain universal support. High-income dynasties may prefer that the children of low-income households do not pursue risky educational investments that could allow them to escape poverty, as in that case those whose investment fail would be viewed as industrious poor deserving income support, resulting in higher taxes on the current rich and their rich children.

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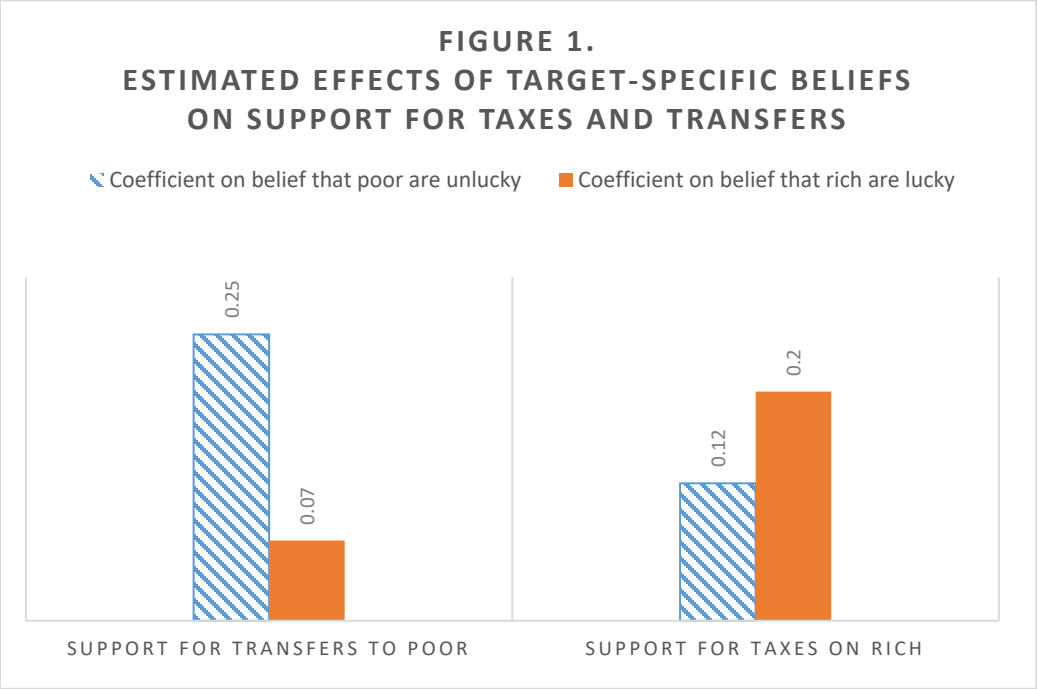

Note: See Table 4, columns 2 and 4, for more detail and full results.

Table 1. Summary statistics for measures of support for redistribution and beliefs

Variable	Obs.	Mean	s.d.
Panel A – Dependent measures in U.S. Gallup data			
TRANSFERPOOR	4704	0.694	0.461
TAXRICH	4832	0.450	0.498
Panel B – Beliefs measures in U.S. Gallup data			
WHYPOOR			
Both circumstances and lack of effort	4869	0.145	0.352
Lack of effort	4869	0.436	0.496
WHYRICH			
Both good luck and effort	4833	0.118	0.323
Effort	4833	0.561	0.496

Table 2. Cross-tabulations of *WHYPOOR* and *WHYRICH*.

	WHYRICH: Strong effort	*WHYRICH*: Both	*WHYRICH*: Luck or circumstances beyond his/her control	Total
WHYPOOR: Lack of effort	1,476	110	501	2,087
	70.72	5.27	24.01	100
	55.53	19.64	32.6	43.89
WHYPOOR: Both	262	339	86	687
	38.14	49.34	12.52	100
	9.86	60.54	5.6	14.45
WHYPOOR: Circumstances beyond his/her control	920	111	950	1,981
	46.44	5.6	47.96	100
	34.61	19.82	61.81	41.66
Total	2,658	560	1,537	4,755
	55.9	11.78	32.32	100
	100	100	100	100

Note: Within each cell, the first row states the number of observations, the second line states row percentages and the third line states column percentages. N=1990 subjects (42%) gave different answers to the two questions.

Table 3. Cross-tabulations of TRANSFERPOOR and TAXRICH

	Should Not Taxrich	Should Taxrich	Total
Should Not Transfer to Poor	995	413	1,408
	70.67	29.33	100
	40.12	19.78	30.82
Should Transfer	1,485	1,675	3,160
	46.99	53.01	100
	59.88	80.22	69.18
	2,480	2,088	4,568
	54.29	45.71	100
	100	100	100

Table 4. OLS regressions, using 1998 Gallup data, of support for government transfers to the poor (*TRANSFERPOOR*), and taxation of the rich (*TAXRICH*) on *WHYPOOR* and *WHYRICH*.

	1 *TRANSFERPOOR*	2 *TRANSFERPOOR*	3 *TAXRICH*	4 TAXRICH
WHYPOOR dummy: Both effort and luck matter	0.143***	0.147***	0.00981	0.0126
	(6.13)	(5.98)	(0.39)	(0.48)
WHYPOOR dummy: Luck matters	0.266***	0.252***	0.138***	0.124***
	(17.99)	(16.22)	(8.62)	(7.42)
WHYRICH dummy: Both effort and luck matter	0.0599**	0.0618**	0.102***	0.0985***
	(2.43)	(2.37)	(3.80)	(3.51)
WHYRICH dummy: Luck matters	0.0775***	0.0696***	0.228***	0.198***
	(5.12)	(4.39)	(13.85)	(11.64)
Demographic controls included?	NO	YES	NO	YES
Constant	0.531***	0.764***	0.312***	0.618***
	(49.63)	(7.23)	(26.82)	(5.45)
N	4395	4015	4395	4015

* p < 0.10, ** p < 0.05, *** p < 0.01. Numbers in parentheses are t-statistics (based on robust standard errors). The omitted category for *WHYPOOR* and *WHYRICH* is effort. All hypotheses tests of Predictions 1-4 for coefficients on *WHYPOOR: Luck matters* and *WHYRICH: Luck matters* are statistically significant at the one-percent level. Predictions 3 and 4 were tested with a cross-model, same-sample Wald test using STATA's sureg command. The same tests for coefficients on *WHYPOOR: Luck matters* and *WHYRICH: Luck matters* are by and large significant at the five-percent level. Columns 2 and 4 include a large number of background variables including dummies for eight income categories (a ninth category is omitted), dummies for seven education categories, age, age squared, sex, a dummy for white, dummies for five marital status categories, a dummy for dependent children living at home, two employment status dummies, and dummies for suburban and rural residence versus urban.

Table 5. Preliminary OLS regressions using our questions from the German Socio-Economic Panel. Dependent variable is *TRANSFERPOOR$_{SOEP}$*.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
WHYPOOR$_{SOEP}$		0.1647***	0.1639***		0.1554***	0.1293***	0.1275***
		(0.014)	(0.014)		(0.014)	(0.020)	(0.020)
WHYRICH$_{SOEP}$				0.0680***	0.0203	0.0231	0.0197
				(0.013)	(0.013)	(0.020)	(0.020)
Age	0.0003	0.0002	0.0004	0.0004*	0.0003	0.0012**	0.0013***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.0389***	0.0333***	0.0312***	0.0361***	0.0313***	0.0388***	0.0213*
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.011)	(0.012)
Education	-0.0119***	-0.0114***	-0.0111***	-0.0116***	-0.0111***	-0.0123***	-0.0083***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Married			-0.0305***	-0.0328***	-0.0313***	-0.0202	-0.0173
			(0.009)	(0.009)	(0.009)	(0.013)	(0.013)
Children			0.0102	0.0124	0.0112	-0.0092	-0.0083
			(0.010)	(0.010)	(0.010)	(0.015)	(0.015)
Monthly Y/100							-0.0013***
							(0.000)
Constant	0.7291***	0.7876***	0.7938***	0.7692***	0.8005***	0.8042***	0.7928***
	(0.019)	(0.019)	(0.020)	(0.021)	(0.021)	(0.031)	(0.031)
N	5379	5287	5287	5277	5237	2639	2639
r2	0.0185	0.0454	0.0478	0.0262	0.0478	0.0420	0.0485

* p<0.10, ** p<0.05, *** p<0.010. Standard errors in parentheses. The dependent variable is the answer to survey question "I will now read out a series of statements. For each statement, please tell me whether you strongly disagree, disagree, neither agree nor disagree, agree, or strongly disagree", with one of the statements being "Financial help to those with low incomes in Germany should be increased". Answer options coded "Strongly against"=1, "Somewhat against"=2, "Neither in favor nor against it"=3, "Somewhat in favor"=4 and "Strongly in favor"=5. "Prefer not to answer/don't know" is coded missing. Numbers reported are OLS-coefficients (robust standard errors in parenthesis). Age is demeaned around the sample mean. Education indicates the number of years of education or training completed at the time of the survey. Monthly Y/100 is gross labor income last month in euros divided by 100. Gross labor income is generated for all SOEP respondents who are employed in a main job and imputed for individuals with missing income. Low Y caused by low effort is the answer to survey question "Just in your opinion, if a working-age person's income is low in Germany, which is most often the reason - lack of effort on his or her part, circumstances beyond his or her control, or both?" Answer options recoded "Circumstances beyond his/her control"=0, "Lack of effort"= 1 and "Both"=0.5. "Prefer not to answer/don't know" is coded missing. High Y caused by high effort is the answer to survey question "Just in your opinion, if a working-age person's income is high in Germany, which is most often the reason - strong effort on his or her part, circumstances beyond his or her control, or both?" Answer options recoded "Circumstances beyond his/her control"=0, "Strong Effort"= 1 and "Both"=0.5. "Prefer not to answer/don't know" is coded missing. Indicator variable for missing marital status. The regressions in columns (7) and (8) are estimated for individuals who are in the labor force and have non-missing income. N differs between models depending on the numbers of missing observations for included variables.

Table 6. Preliminary OLS regressions using our questions from the German Socio-Economic Panel. Dependent variable is *TAXRICH$_{SOEP}$*.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
WHYPOOR$_{SOEP}$				0.1300***	0.0758***	0.0914***	0.0882***
				(0.014)	(0.015)	(0.021)	(0.021)
WHYRICH$_{SOEP}$		0.1779***	0.1775***		0.1553***	0.1637***	0.1576***
		(0.013)	(0.013)		(0.014)	(0.020)	(0.020)
Age	0.0024***	0.0023***	0.0023***	0.0023***	0.0022***	0.0027***	0.0030***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Female	-0.0143*	-0.0137*	-0.0161**	-0.0203**	-0.0185**	-0.0134	-0.0439***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.011)	(0.012)
Education	-0.0056***	-0.0060***	-0.0058***	-0.0053***	-0.0055***	-0.0119***	-0.0049**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Married			-0.0195**	-0.0180**	-0.0193**	-0.0111	-0.0062
			(0.009)	(0.009)	(0.009)	(0.014)	(0.014)
Children			0.0150	0.0122	0.0143	-0.0230	-0.0210
			(0.011)	(0.011)	(0.011)	(0.016)	(0.015)
Monthly Y/100							-0.0023***
							(0.000)
Constant	0.7540***	0.8492***	0.8473***	0.8065***	0.8633***	0.9748***	0.9544***
	(0.020)	(0.021)	(0.022)	(0.022)	(0.022)	(0.032)	(0.032)
N	5384	5284	5284	5293	5245	2644	2644
r2	0.0241	0.0572	0.0582	0.0409	0.0633	0.0663	0.0837

* p<0.10, ** p<0.05, *** p<0.010. Regressions scale this variable to increase in beliefs that luck matters. The dependent variable is the answer to survey question "I will now read out a series of statements. For each statement, please tell me whether you strongly disagree, disagree, neither agree nor disagree, agree, or strongly disagree", with one of the statements being "Taxes on those with high incomes in Germany should be increased". Answer options coded "Strongly against"=1 "Somewhat against"=2, "Neither in favor nor against it"=3, "Somewhat in favor"=4 and "Strongly in favor"=5. "Prefer not to answer/don't know" is coded missing. Numbers reported are OLS-coefficients (robust standard errors in parenthesis). Age is demeaned around the sample mean. Education indicates the number of years of education or training completed at the time of the survey. Monthly Y/100 is gross labor income last month in euros divided by 100. Gross labor income is generated for all SOEP respondents who are employed in a main job and imputed for individuals with missing income. Indicator variables for missing education and marital status. Low Y caused by low effort is the answer to survey question "Just in your opinion, if a working-age person's income is low in Germany, which is most often the reason - lack of effort on his or her part, circumstances beyond his or her control, or both?" Answer options recoded "Circumstances beyond his/her control"=0, "Lack of effort"= 1 and "Both"=0.5. "Prefer not to answer/don't know" is coded missing. High Y caused by high effort is the answer to survey question "Just in your opinion, if a working-age person's income is high in Germany, which is most often the reason - strong effort on his or her part, circumstances beyond his or her control, or both?" Answer options recoded "Circumstances beyond his/her control"=0, "Strong Effort"= 1 and "Both"=0.5. "Prefer not to answer/don'tknow" is coded missing. Indicator variable for missing marital status. The regressions in columns (7) and (8) are estimated for individuals who are in the labor force and have non-missing income. N differs between models depending on the numbers of missing observations for included variables.

Table 7. Prior measures of beliefs in experiment on giving to welfare recipients

Original source of wording for question used in experiment	Question wording and responses as coded in data set (prior to standardization).	Spearman rank corr. coef. with offers (p-value)
Panel A: Target-specific beliefs		
Gallup (1998)	Which of the following more often explains why a person is poor: circumstances beyond his or her control = 0, both = .5, lack of effort on his or her part = 1.	-0.173 (0.038)
Katz-Hass (1989)	Most people who don't succeed in life are just plain lazy. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.211 (0.011)
Katz-Hass (1989)	People who fail at a job have usually not tried hard enough. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.159 (0.057)
NA	***First principal component of above questions in Panel A.***	***-0.2129 (0.010)***
Panel B: Non-target-specific beliefs		
Gallup (1998)	Which of the following more often explains why a person is rich: circumstances beyond his or her control = 0, both = .5, strong effort on his or her part = 1.	-0.122 (0.147)
Katz-Hass (1989)	Anyone who is willing and able to work hard has a good chance of succeeding. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.110 (0.189)
Katz-Hass (1989)	The person who can approach an unpleasant task with enthusiasm is the person who gets ahead.	0.092 (0.274)
Katz-Hass (1989)	If people work hard enough they are likely to make a good life for themselves. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.024 (0.773)
Gallup (1998)	There is plenty of opportunity in America today. Anyone who works hard can go as far as he or she wants. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.075 (0.374)
NA	***First principal component of above questions in Panel B.***	***-0.057 (0.500)***

Table 8. Tobit regressions of dictator game offers to welfare recipients on target-specific and non-target-specific beliefs.

	(1)	(2)	(3)
Target-specific belief	-0.973***		-1.070***
	(-2.89)		(-2.72)
Non-target-specific belief		-0.420	0.169
		(-1.26)	(0.44)
Constant	1.943***	1.955***	1.940***
	(6.11)	(5.97)	(6.08)
sigma			
Constant	3.730***	3.823***	3.731***
	(9.49)	(9.63)	(9.48)
Observations	144	144	144

* p < 0.10, ** p < 0.05, *** p < 0.01. Robust standard errors (in parentheses).

Appendix

Table A1. Variable names and exact wording of social survey variables in 1998 Gallup and 2014 SOEP data.

PANEL A: Questions from the 1998 Gallup Social Audit

$WHYRICH_{Gallup}$
Just your opinion, which is more often to blame if a person is rich –strong effort to succeed on his or her part, or luck or circumstances beyond his or her control? (Strong effort=1, Both=2, Luck or circumstances beyond his/her control=3).

$WHYPOOR_{Gallup}$
Just your opinion, which is more often to blame if a person is poor – lack of effort on his or her part, or circumstances beyond his or her control? (Lack of effort=1, Both=2, Circumstances beyond his/her control=3).

$TAXRICH_{Gallup}$
People feel differently about how far a government should go. Here is a phrase which some people believe in and some don't. Do you think our government should or should not redistribute wealth by heavy taxes on the rich? (should =1, should not = 0).

$TRANSFERPOOR_{Gallup}$
Some people feel that the government in Washington, DC should make every possible effort to improve the social and economic position of the poor. Others feel that the government should not make any special effort to help the poor, because they should help themselves. How do you feel about this? (The government should help the poor =1, The poor should help themselves =0).

PANEL B: Questions written by us for the 2014 wave of the German Socio-economic Panel.

Q8201. I will now read out a series of statements. For each statement, please tell me whether you strongly disagree, disagree, neither agree nor disagree, agree, or strongly disagree. (Response categories are: Strongly against; Somewhat against; Neither in favor nor against it; Somewhat in favor; Strongly in favor; Prefer not to answer/don't know.)

$TAXRICH_{SOEP}$
Taxes on those with high incomes in Germany should be increased.

$TRANSFERPOOR_{SOEP}$
Financial help to those with low incomes in Germany should be increased.

$WHYPOOR_{SOEP}$
Just in your opinion, if a working-age person's income is low in Germany, which is most often the reason - lack of effort on his or her part, circumstances beyond his or her control, or both? (Response categories are: Lack of effort; Circumstances beyond his/her control; Both; Prefer not to answer/don't know.) We code this variable to increase in the belief that luck matters.

$WHYRICH_{SOEP}$
Just in your opinion, if a working-age person's income is high in Germany, which is most often the reason - strong effort on his or her part, circumstances beyond his or her control, or both? (Response categories are:

Strong Effort; Circumstances beyond his/her control; Both; Prefer not to answer/don't know.) We code this variable to increase in the belief that luck matters.

Q8201. Ich lese Ihnen nun zwei Aussagen vor. Bitte sagen Sie mir jeweils, ob Sie dieser Aussage überhaupt nicht zustimmen, eher nicht zustimmen, weder zustimmen noch diese ablehnen, eher zustimmen oder voll und ganz zustimmen. (Response categories are: Stimme überhaupt nicht zu; Stimme eher nicht zu; Stimme weder zu noch lehne ich ab; Stimme eher zu; Stimme voll und ganz zu; Keine Angabe.)

Personen mit hohem Einkommen sollten in Zukunft stärker besteuert werden

Personen mit geringem Einkommen sollten in Zukunft mehr Sozialleistungen erhalten

Q8202. Was ist Ihrer Meinung nach meistens der Grund dafür, dass eine Person in Deutschland wenig verdient? Liegt das am mangelnden Einsatz der Person, an äußeren Umständen, die er oder sie nicht kontrollieren kann, oder an beidem? (Response categories are: Mangelnder Einsatz; Äußere Umstände; die er oder sie nicht kontrollieren kann; Beides; Keine Angabe.)

Q8203. Was ist Ihrer Meinung nach meistens der Grund dafür, dass eine Person in Deutschland viel verdient? Liegt das am hohen Einsatz der Person, an äußeren Umständen, die er oder sie nicht kontrollieren kann, oder an beidem? (Response categories are: Hoher Einsatz; Äußere Umstände, die er oder sie nicht kontrollieren kann; Beides; Keine Angabe.)

Table A2. Gallup data: Summary statistics for control variables.

Variable	Obs.	Mean	s.d.
Panel A – Dependent measures			
TRANSFERPOOR	4704	0.694	0.461
TAXRICH	4832	0.450	0.498
Panel B – Beliefs measures			
WHYPOOR			
Both circumstances and lack of effort	4869	0.145	0.352
Lack of effort	4869	0.436	0.496
WHYRICH			
Both good luck and effort	4833	0.118	0.323
Effort	4833	0.561	0.496
Panel C – Control variables			
$10,000≤Y<$15,000	4571	0.055	0.228
$15,000≤Y<$20,000	4571	0.072	0.258
$20,000≤Y<$30,000	4571	0.161	0.368
$30,000≤Y<$50,000	4571	0.282	0.450
$50,000≤Y<$75,000	4571	0.193	0.394
$75,000≤Y<$100,000	4571	0.093	0.290
$100,000≤Y<$150,000	4571	0.052	0.222
$150,000≤Y	4571	0.033	0.180
High school graduate	4959	0.267	0.442
Technical, trade, or business degree after high school	4959	0.052	0.221
Some college	4959	0.261	0.439
College degree	4959	0.145	0.352
Some post-graduate education or more	4959	0.159	0.366
White	4899	0.814	0.389
Male	4998	0.454	0.498
Age	4925	44.732	16.537
Employed part-time	4961	0.129	0.335
Not employed	4961	0.287	0.453
Suburban resident	5001	0.457	0.498
Rural resident	5001	0.238	0.426
Child under 18 living at home	4967	0.405	0.491
Married	4961	0.557	0.497

Note: All variables are dummy variables except age.